



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/743,461	12/23/2003	Thomas Thoroe Scherb	P24575	8138
7055	7590	05/20/2004	EXAMINER	
GREENBLUM & BERNSTEIN, P.L.C. 1950 ROLAND CLARKE PLACE RESTON, VA 20191			HUG, ERIC J	
			ART UNIT	PAPER NUMBER
			1731	

DATE MAILED: 05/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/743,461

Applicant(s)

SCHERB ET AL.

Examiner

Eric Hug

Art Unit

1731

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 23 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-33 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-33 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☒ Certified copies of the priority documents have been received in Application No. 09/471,369.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102/103*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1-4, 7-21, and 27-32 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Edwards (US 6,248,210). Edwards discloses a method for pressing and dewatering an absorbent fibrous web such as tissue paper. The method uses a shoe press on a Yankee dryer with optimization of the nip pressure profile, peak nip pressure, and line load. Figure 9 shows the shoe press against a large drying cylinder (Yankee cylinder), whereby the web contacts the drying surface, and underlying the web are a water-absorbent felt and an impermeable shoe press belt (blind bored or grooved, column 3, lines 57-59) that circulates the press shoe of the shoe press. Nip pressure profiles are illustrated in Figures 3, 7, and 8. As can be seen with the shoe presses, the nip pressure profile is

Art Unit: 1731

asymmetrical, with the peak pressure occurring near the end of the shoe. The profile gradually increases to the peak pressure then steeply drops off. Figure 3 compares two shoe presses of different shoe lengths and a two-roll nip press utilizing a suction roll. The shoe presses illustrated in Figure 3 have lengths of 50 and 120 mm (can be less than seven inches [about 175 mm] as given in column 16, line 43). The peak pressure for the 120 mm shoe is about 1500 kN/m<sup>2</sup> (1.5 MPa) and the peak pressure for the 50 mm shoe is about 4500 kN/m<sup>2</sup> (4.5 MPa). Figure 12 shows line load data for the two shoes, ranging from below 87.5 kN/m to about 250 kN/m. The apparatus of Edwards comprises all the claimed elements, namely the press shoe, the press shoe length, the Yankee cylinder, the web, absorbent band, and impermeable band, and is capable of operating within the claimed limits of nip length, peak pressure, and line load as demonstrated by the examples provided.

Alternatively, regarding the peak pressures, nip length, and line loads of the claims, it is clear that the operating parameters of Edwards represent optimum values that are advantageous for the particular conditions and results that are sought by Edwards. Edwards operates the shoe press at a peak pressure of 2 MPa or greater and a line load of 240 kN/m or greater, which are outside the claimed limits, however, it would have been obvious to one skilled in the art to optimize these parameters depending on the particular application. The claimed maximum pressures and line loads are unpatentable in view of *In re Boesch*, 205 USPQ 215 (CCPA 1980) - the discovery of an optimum value of a known result effective variable without producing any new or unexpected results is within the skill of the routineer in the art.

The features described above read on the shoe press features and operating conditions of claims 1-4, the shape of the pressure profiles of claims 7 and 8, the features of web, felt, and belt

Art Unit: 1731

of claims 16-18 and 21, the shoe press roll with jacket of claims 27 and 28 (by virtue of combination of a press shoe and a circulating belt), and the replaceable press shoe of claim 29 (by virtue of using shoes of different lengths).

Regarding the pressure gradients of claims 9-15, since the claimed shoe lengths, peak pressures, and pressure profiles all fall within the range of those of Edwards, it would be inherent that the rise in pressure and fall in pressure along the length of the shoe would also fall within the claimed ranges. For example, as can be determined from Figure 3, the pressure rise gradient for the 50 mm shoe is about 4.5MPa/40 mm or equivalently about 115 kPa/mm, which is close to the claimed 120 kPa of claim 11, at least within reasonable error. In actuality, the pressure rise gradient will occur a few mm short of 40 mm, so the pressure rise gradient may be higher. It is also clear that the pressure drop occurs over the last few mm of the press shoes, and is higher than 1000 MPa/mm.

Regarding claims 19, 20, and 30-32, useful felts are disclosed in column 1, line 64-column 2, line 5, and in column 2, line 61-column 31. These include felts comprising a base fabric with a stratified batting, and felts structured for imprinting a pattern onto the web. The claimed structural features of 19, 20, and 30-32 are inherent or obvious features of the disclosed felts.

2. Claims 1-4, 7, 8, 16-18, 21, and 24-28 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Schiel (US 6,004,429). Schiel discloses a tissue making machine with a shoe press roll 28 contacting against a Yankee drying cylinder 60. Note that drying cylinder 60 is not called a "Yankee drying cylinder" by Schiel, but

Art Unit: 1731

merely a "drying cylinder". However "Yankee drying cylinder" is the accepted terminology for a large drying cylinder in a tissue making machine where a creping doctor 62 crepes the web from the surface of the dryer. It would be immediately obvious to one skilled in the art that drying cylinder 60 is a Yankee drying cylinder. The web is held to the drying surface of the drying cylinder by felt 12 (a water-absorbent carrier) and shoe press belt (the water-impermeable pressing band that surrounds the press shoe; equivalent to belt 44 around shoe press roll 40). Schiel describes that the press shoe may be 50-120 mm long which reads on the claimed lengths in claims 1-3, and teaches a line force of 100-200 kN/m which reads on the claimed line force of claim 4. See column 5, lines 1-10. Schiel also discloses therein that the maximum pressing pressure in the pressure profile is advantageously 2.5-5.0 MPa, therefore the device is inherently capable of also operating at any maximum pressure below 2.5MPa including 2 MPa (zero pressure would be the lowest possible pressure) and reads on the claimed maximum pressure of claim 1. Schiel also discloses column 5, lines 1-10 that the nip pressure gradually increases at first in the web travel direction and then sharply drops, thus the peak pressure is near the rear portion (downstream portion) of the press nip. This reads on claims 7-8. The relative positions of the web, felt, and belt described above read on the arrangements and features given in claims 16-18. In column 5, lines 11-13 (among other recitations) the shoe press belt (jacket) is described as having grooves or blind bores, which reads on claim 21. Schiel also discloses a pre-press 26 ahead of the drying cylinder, which reads on claim 24. The pre-press comprises a lower suction roll, which reads on claims 25 and 26. As described above, the shoe press unit 28 is a shoe press roll, and the jacket about thereof is an impermeable press band, these two features read on claims 27 and 28.

Art Unit: 1731

Regarding the pressure of claim 1, even without express suggestion of a maximum pressure of 2.0MPa or less, Schiel teaches that his maximum pressure is advantageous if a high production capacity is sought. Clearly, Schiel teaches that one may use lower pressures, and therefore it would have been obvious to one skilled in the art to optimize the maximum pressure depending on the particular application. The claimed maximum pressure is therefore unpatentable in view of *In re Boesch*, 205 USPQ 215 (CCPA 1980) -- the discovery of an optimum value of a known result effective variable without producing any new or unexpected results is within the skill of the routinier in the art.

3. Claims 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Edwards in view of Laapotti (US 5,043,046). Edwards described in detail above discloses a method for pressing and dewatering an absorbent fibrous web such as tissue paper, whereby the method uses a shoe press on a Yankee dryer operable within the claimed limits of peak nip pressure and shoe length. Edwards discloses that the press shoe extends cross-wise the width of the web, but does not disclose that the press shoe comprises a plurality of press elements arranged cross-wide and adjacent to one another, such press elements adapted to press the press shoe against the drying cylinder and being actuatable independently of one another. However, these features of a shoe press are well known as exemplified by the shoe press of Laapotti. Laapotti in Figure 2 teaches using a plurality of press elements in the cross-wise direction in order to control crowning, which is known to affect the widthwise quality of the web. Therefore, at the time of the invention, it would have been obvious to one skilled in the art that the press shoe of Edwards would comprise the above mentioned press elements in order to press a web uniformly across its width.

4. Claims 22 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Edwards in view of Bluhm et al (US 5,556,511) and Tapio et al (US 4,139,410). Edwards described in detail above discloses a method for pressing and dewatering an absorbent fibrous web such as tissue paper, whereby the method uses a shoe press on a Yankee dryer operable within the claimed limits of peak nip pressure and shoe length. Edwards discloses using only a single press nip at the Yankee dryer rather than the claimed additional press nip.

The use of two or more press nips with a heated drying cylinder is well known as exemplified by Bluhm and Tapio. Bluhm discloses the use of a shoe press 9' against a surface of a heated counter roll 9, which Bluhm expresses as being advantageous for drying of tissue papers. The use of a wide nip avoids hurting the quality of a tissue web as compared to a conventional roll-roll press nip. Figure 5 shows the use of two shoe presses 9' against the heated counter roll, in which Bluhm says can be advantageous depending on the drying requirements (column 5, lines 1-8). The known use of a Yankee drying cylinder is also discussed by Bluhm in column 1, lines 16-24, so there is some suggestion by Bluhm for using the two shoe presses against the surface of a Yankee drying cylinder. Even if it not readily apparent that the two shoe presses can be used against a Yankee drying cylinder, Tapio is cited here to exemplify that the use of two press nips against a Yankee drying cylinder is well known for the purpose of further drying the web enabling it to adhere better to the Yankee cylinder when later creped. Therefore, at the time of the invention it would have been obvious to one skilled in the art to utilize an additional shoe press nip against the Yankee drying cylinder in Edwards, as taught by Bluhm and



Art Unit: 1731

Tapio to improve the drying of the tissue web as conditions dictate and to insure adhesion of the web to the Yankee dryer during creping.

5. Claim 33 is rejected under 35 U.S.C. 103(a) as being unpatentable over Edwards in view of Sauer (US 5,019,211). Edwards described in detail above discloses a method for pressing and dewatering an absorbent fibrous web such as tissue paper, whereby the method uses a shoe press on a Yankee dryer operable within the claimed limits of peak nip pressure and shoe length.

Edwards does not disclose a web having curled fibers, however the use of curled fiber in making absorbent webs is well known in the art, as disclosed by Sauer. Sauer discloses method steps of making absorbent webs with curly fibers that include drying on a Yankee dryer and creping.

Therefore, at the time of the invention, it would have been obvious to one skilled in the art that the shoe press of Edwards would be useful for making absorbent webs with curly fibers.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

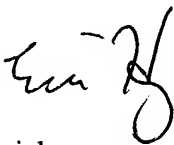
Laapotti (US 4,976,820) discloses an extended nip press that operates against a heated drying cylinder under conditions of press length, peak pressure, and nip line load that read on the present invention.

Art Unit: 1731

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eric Hug whose telephone number is 571 272-1192. The examiner can normally be reached on Monday through Friday, 10:00 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on 571 272-1189. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



jeh